

**San Juan Urban Long-  
Term Research Area  
(ULTRA)  
USDA Forest Service  
International Institute of  
Tropical Forestry**



## **MEMORANDUM OF UNDERSTANDING**

**Regarding research on**

**CONNECTING ECOSYSTEM SERVICES AND HUMAN HEALTH AND WELL-BEING  
TO INFORM COMMUNITY DECISION MAKING**

**Between the**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
AND  
SAN JUAN URBAN LONG-TERM RESEARCH AREA  
USDA FOREST SERVICE, INTERNATIONAL INSTITUTE OF TROPICAL FORESTRY**

### **I. PURPOSE/OBJECTIVES/GOALS**

The purpose of this MOU is to develop a collaboration between the United States Department of Agriculture, Forest Service, International Institute of Tropical Forestry (USDA-FS IITF) and the US Environmental Protection Agency's National Health and Environmental Effects Research Laboratory (USEPA NHEERL) regarding the San Juan Urban Long-Term Research Area (SJ ULTRA). SJ ULTRA is a collaborative network of academic institutions (e.g., University of Puerto Rico) and public partnerships established and principally led by the USDA-FS IITF. The parties intend to share information, approaches, data, analyses and models used to investigate impacts of environmental quality and ecosystem services on human health and human well-being in coastal communities. Linkages between ecosystem condition, ecosystem services, and sustainable human well-being is a key objective of USEPA's Sustainable and Healthy Communities Research Program (SHC), and complements the objectives of SJ ULTRA, which seeks to conduct and support research about the city of San Juan, Puerto Rico as a social-ecological system, and how this system can adapt and be sustainable in the face of future changes, including climate change.

### **II. BACKGROUND**

Since the early 1970s, the U.S. Environmental Protection Agency (USEPA) has studied the impacts of human activities on the environment and the human health effects of environmental contaminants. The USEPA is responsible for protecting the Nation's water resources under the

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Clean Water Act (CWA), and is investing in research programs to use integrated systems approaches to develop scientific and technological solutions that protect watersheds, aquatic ecosystems, and human health. There is growing recognition ecosystem services, such as nutrient processing or flood protection, can benefit communities and need to be considered more fully by decision-makers (MEA 2005; WRI 2007). This recognition amplifies the need for integration across ORD research programs as stated in the Sustainable and Healthy Communities Strategic Research Action Plan 2016-2019 (<https://www.epa.gov/research/sustainable-and-healthy-communities-strategic-research-action-plan-2016-2019>).

A goal of SHC is to develop causal relationships between environmental conditions and human well-being, with particular attention to human health endpoints. Key focal areas include 1) quantifying the linkages between ecosystem goods and services and changes in human health and well-being, 2) quantifying benefits of ecosystem services on human health endpoints, and 3) quantifying the effects of climate change and co-occurring stressors on ecosystem services and benefits to human health.

SHC Project 2.61 "Final Community-Based Ecosystem Goods and Services" is conducting this focal research within coordinated case studies, to ensure science and approaches are relevant to local community decision-making, as well as transferable to other communities. Vector-borne illnesses are a human health endpoint of particular relevance to communities such as San Juan, Puerto Rico. For example, the San Juan Coordinated Case Study will explore linkages between watershed management decisions (e.g., dredging canals, restoration of mangrove buffers, sewage discharge interventions, climate adaptive strategies) targeting priority stressors (e.g., nutrients, contaminants, and pathogens; aquatic debris; habitat loss; modified hydrology and water circulation; sea level rise; storm intensity and frequency) effecting the condition of ecosystems (e.g., estuarine habitats and fish, as well as the connected terrestrial and coastal ecosystems), associated ecosystem goods and services (e.g., tourism and recreation, fishing, nutrient & sediment retention, contaminant processing, carbon sequestration, flood protection), and effects on public health (e.g., asthma, gastrointestinal diseases, vector-borne illnesses) and human well-being (e.g., public safety, social cohesion). Disparate impacts on vulnerable populations (children, impoverished rural and urban communities, such as the Martin Peña) will be investigated.

SJ ULTRA is currently conducting research aligning with USEPA goals, including long-term research and monitoring that looks at how the ecological, socio-economic, and governance systems of San Juan are changing over time (e.g., green infrastructure), and search to meet the immediate needs of stakeholders and the public, such as stormwater management and sustainable development.

The MOU is intended to integrate a diversity of scientific expertise to address shared goals of linking ecosystem condition to ecosystem services and sustainable human well-being.

### III. AUTHORITIES

EPA enters into this MOU pursuant to Section 104 of the Clean Water Act, 33 U.S.C. § 1254, which encourages cooperative research investigation, training, and information sharing.

#### **IV. ROLES AND RESPONSIBILITIES**

USDA-FS IITF and the USEPA NHEERL intend to collaborate and share data, information, and expertise to support the aforementioned research projects of mutual interest. This includes discussions regarding validation approaches and planning for implementation of projects of specific interest to each party. Sharing of technical information, data, models and periodic communications may include conference calls and occasional face-to-face meetings. Discussions are intended to be documented by both parties. USEPA NHEERL and USDA-FS IITF will adhere to SJU ULTRA Data Sharing and Download Policies (Appendix A).

#### **V. LIMITATIONS**

A. Nothing in this MOU, in and of itself, obligates USDA-FS IITF or USEPA NHEERL to expend appropriations or to enter into any contract, assistance agreement, interagency agreement, or other financial obligation. This MOU does not exempt USDA-FS IITF from EPA policies governing competition for assistance agreements.

B. This MOU is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the parties to this MOU will be handled in accordance with applicable laws, regulations, and procedures, and will be subject to separate subsidiary agreements that will be effected in writing by representatives of both parties.

C. This MOU is not legally binding and does not create any right or benefit, substantive or procedural, enforceable by law or equity against USDA-FS IITF or USEPA NHEERL, their officers or employees or any other persons.

D. USDA-FS IITF may make factual statements to the public which describe its cooperation with USEPA NHEERL. However, nothing in this MOU constitutes an endorsement by either party of the other, including any products or services, or any fundraising activity or promotion. USDA-FS IITF agrees not to make statements to the public in news releases, product brochures, on web sites or in any media that imply EPA endorsement of USDA-FS IITF products or services.

#### **VI. PROPRIETARY INFORMATION**

To carry out the joint work resulting from this MOU, if SJ ULTRA possesses proprietary information concerning this joint project, SJ ULTRA may need to disclose proprietary information to EPA. For the purpose of this MOU, proprietary information is defined as information that an affected business or university claims to be confidential is trade secret or is not otherwise available to the public. SJ ULTRA agrees to clearly identify as such confidential information disclosed to EPA in writing; and to clearly memorialize in writing, within a reasonable time, any confidential information initially disclosed orally. The EPA agrees not to disclose, copy, reproduce or otherwise make available in any form whatsoever to any other person, firm, corporation, partnership, association or other entity information designated as proprietary or confidential information without consent of SJ ULTRA except as such information may be subject to disclosure under the Freedom of Information Act (5 U.S.C. § 552), and EPA's regulations at 40 C.F.R. Part 2, or as otherwise authorized by law.

## **VII. INTELLECTUAL PROPERTY**

The parties agree that any copyrightable subject matter, including but not limited to journal articles, training, educational or informational material or software, created jointly by the parties from the activities conducted under the MOU are public and not subject to copyrights.

Each party shall retain title to inventions and other intellectual property developed by their respective employees. In the event that employees of more than one party make an invention, the invention shall be jointly owned by the parties employing the inventors. Any question of inventorship shall be determined in accordance with U.S. Patent law.

## **VIII. POINTS OF CONTACT**

The following individuals are designated points of contact for the MOU:

### **A. U.S. Environmental Protection Agency:**

Dr. Susan Yee  
US Environmental Protection Agency  
Office of Research and Development  
National Health and Environmental Effects Research Laboratory  
Gulf Ecology Division, 1 Sabine Island Drive, Gulf Breeze, FL 32561,  
[yee.susan@epa.gov](mailto:yee.susan@epa.gov)  
Phone 850-934-9397

### **B. San Juan Urban Long-Term Research Area USDA Forest Service, International Institute of Tropical Forestry:**

Dr. Tischa Muñoz-Erickson  
SJ ULTRA Program Manager  
USDA Forest Service, International Institute of Tropical Forestry  
1201 Jardin Botánico Sur  
Rio Piedras, PR 00926-1119  
[tmunozzerickson@fs.fed.us](mailto:tmunozzerickson@fs.fed.us)  
Phone 928-600-1613

## **X. EFFECTIVE DATE/MODIFICATION/DURATION/TERMINATION**

This will be effective when signed by all parties. This MOU may be amended at any time by the mutual written consent of both parties. The parties will review this MOU every 5 years to determine whether it should be revised, renewed, or cancelled. This MOU may be terminated at any time by one party notifying the other party in writing ninety (90) days in advance of the termination date.

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**X. APPROVAL**

**San Juan Urban Long-Term Research Area  
USDA Forest Service International Institute  
of Tropical Forestry**

  
\_\_\_\_\_  
Signature

12-20-17  
\_\_\_\_\_  
Date

**U.S. Environmental Protection Agency**

  
\_\_\_\_\_  
V. Kay Holt

Deputy Director, NHEERL

8/30/2017  
\_\_\_\_\_  
Date

## Appendix A

### **SJ ULTRA Data Sharing and Authorship Policies**

San Juan ULTRA (SJ ULTRA) is dedicated to the advancement of scientific collaboration and public knowledge by making as much of its research data as publicly available as possible. Because the San Juan ULTRA is a collaborative network of multiple institutions and disciplinary traditions, the expectations on data sharing, use, and authorship may vary significantly. This policy is meant to provide a basis for common expectations that are explicit across the network of collaborators participating in the San Juan ULTRA. Our data sharing and use policies include<sup>1</sup>:

- SJ ULTRA investigators have the obligation both to contribute data collected with ULTRA funding to the SJ ULTRA database within two years of collection and to submit the data for publication in the open literature and website in a timely fashion.
- SJ ULTRA investigators have first right of publication of the data they collect before their release within the time limits specified.
- Datasets will be distributed by the SJ ULTRA program only under the condition that they are not sold or distributed by the recipient.
- We have an "opt-in" policy for where investigators requesting datasets is expected to invite the investigators that originally developed the dataset to contribute in subsequent publications as co-authors. The scientist who originated the dataset can decide to opt-in if they agree to make a substantial, direct, intellectual contribution to the work, or can choose to opt-out but still release the data.
- No one is guaranteed automatic authorship on any paper. Everyone listed as an author should have made a substantial, direct, intellectual contribution to the work. The lead author can decide the order of authors based on their contribution to the paper.
- SJ ULTRA expects that any use of data from this server will be accompanied with the appropriate citations and acknowledgments.
- Questions of interpretation of these policies will be resolved in writing by the Executive Committee of the San Juan ULTRA according to the procedures discussed below.
- SJ ULTRA datasets may be downloaded directly through our website ([www.sanjuanultra.org](http://www.sanjuanultra.org)) upon acceptance of our data download agreement (see below).

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<sup>1</sup> Most of the terms and guidelines presented here are informed by the NSF Long-Term Ecological Research (LTER) program, including the Luquillo and CAP LTERs. More detailed descriptions of these guidelines can be found in the *San Juan ULTRA Principles of Collaboration* document.

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**SJ ULTRA Website Data Download Agreement**

[The data user will be asked to submit this information through the website before agreeing to the download policies: Name, Organization, Contact Information, Intended Use of the Data]

Through this website you can download SJ ULTRA datasets. If datasets cannot be found in the website, inquiries should be directed to the Program Manager, Tischa A. Muñoz-Erickson at [tamunozerickson@fs.fed.us](mailto:tamunozerickson@fs.fed.us). The Program Manager will coordinate the data release process and identify the appropriate individuals to request data release. Permission to use this dataset is granted free of charge subject to the following terms<sup>2</sup>:

- While the SJ ULTRA will make every effort possible to control and document the quality of the data it publishes, the data are made available "as is".
- SJ ULTRA cannot assume responsibility for damages resulting from mis-use or mis-interpretation of datasets or from errors or omissions that may exist in the data.
- SJ ULTRA encourages users to contact the original investigator responsible for the data that they are accessing, and where appropriate, researchers are encouraged to consider collaboration and/or co-authorship with original investigators<sup>3</sup>.
- SJ ULTRA expects data users to acknowledge the work of other scientists that has resulted in data used in subsequent research.
- SJ ULTRA expects that any use of data from this server will be accompanied with the appropriate citations and acknowledgments.

**Acknowledgement:** *This work was supported by the National Science Foundation (NSF) under grant number 0948507 (Urban Long-Term Research Area Exploratory) and the USDA Forest Service. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the NSF or the USDA Forest Service.*

- SJ ULTRA requests that users not redistribute data obtained from this site. However, links or references to this site may be freely posted.
- SJ ULTRA requests that users submit one copy of any publication resulting from the use of data obtained from this site by sending it to [tamunozerickson@fs.fed.us](mailto:tamunozerickson@fs.fed.us)

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<sup>2</sup> Most of the terms and guidelines presented here are informed by the NSF Long-Term Ecological Research (LTER) program, including the Luquillo and CAP LTERs. More detailed descriptions of these guidelines can be found in the *San Juan ULTRA Principles of Collaboration* document.

<sup>3</sup> More detailed guidelines on Authorship guidelines can be found in the *San Juan ULTRA Principles of Collaboration* document.

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## Appendix B

**Forest Service provisions that should be included in other agency format if not already included:**

**Notices.** Any communications affecting the operations covered by the agreement given by the U.S. Forest Service or the USEPA NHEERL is sufficient only if in writing and delivered in person, mailed, or transmittal electronically by e-mail or fax, as follows:

To the U.S. Forest Service Program Manager, at the address specified in the MOU.

To the USEPA NHEERL at the USEPA NHEERL's address shown in the MOU or such other address designated within the MOU.

Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

**Participation in Similar Activities.** This MOU in no way restricts the U.S. Forest Service or the USEPA NHEERL from participating in similar activities with other public or private agencies, organizations, and individuals.

**Use of U.S. Forest Service Insignia.** In order for the USEPA NHEERL to use the U.S. Forest Service insignia on any published media, such as a Web page, printed publication, or audiovisual production, permission must be granted from the U.S. Forest Service's Office of Communications. A written request must be submitted and approval granted in writing by the Office of Communications (Washington Office) prior to use of the insignia

**Text Messaging While Driving.** In accordance with Executive Order (EO) 13513, "Federal Leadership on Reducing Text Messaging While Driving", any and all text messaging by Federal employees is banned: a) while driving a Government owned vehicle (GOV) or driving a privately owned vehicle (POV) while on official Government business; or b) using any electronic equipment supplied by the Government when driving any vehicle at any time. All cooperators, their employees, volunteers, and contractors are encouraged to adopt and enforce policies that ban text messaging when driving company owned, leased or rented vehicles, POV's or GOV's when driving while of official Government business or when performing any work for on or behalf of the Government.

**U.S. Forest Service Acknowledged in Publications, Audiovisuals and Electronic Media.** The USEPA NHEERL shall acknowledge U.S. Forest Service support in any publications, audiovisuals, and electronic media developed as a result of this MOU.

**Nondiscrimination Statement – Printed, Electronic, or Audiovisual Material.** The USEPA NHEERL shall include the following statement, in full, in any printed, audiovisual material, or electronic media for public distribution developed or printed with any Federal funding.

***In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. (Not all prohibited bases apply to all programs.)***

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**To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.**

If the material is too small to permit the full statement to be included, the material must, at minimum, include the following statement, in print size no smaller than the text:

***"This institution is an equal opportunity provider."***

National Health and Environmental Effects Research Laboratory

Approval of MOU between NHEERL GED and  
San Juan Urban Long-Term Research Area (SJ ULTRA)

Regarding research on  
"Connecting Ecosystem Services and Human Health and Well-being  
To Inform Community Decision-making"

Your signature indicates you have *read* and *approve* the proposed MOU.

Concurrences (signature):

Date:

Raina Porras

Raina Porras  
Extramural Management Specialist

8/16/17

Sandy Ramondo

Sandy Ramondo, Chief  
Biological Effects and Population Response Branch, GED

8/23/17

George, Elizabeth

Digitally signed by George, Elizabeth  
DN: cn=George, Elizabeth, email=george.elizabeth@epa.gov  
Date: 2017.08.28 11:38:53 -0500

Beth, George, Director  
Gulf Ecology Division, NHEERL

William Fisher

Digitally signed by William Fisher  
DN: cn=William Fisher, o, ou, email=fisher.william@epa.gov, c=US  
Date: 2017.08.28 20:55:28 -0700

William Fisher, Acting Associate Director for Ecology  
NHEERL

Approval:

V. K. Holt

V. Kay Holt, Deputy Director  
NHEERL

8/30/2017